

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Three Times Amended): A fluid input assembly for a pneumatic engine for toy vehicles, the assembly comprising:

(a) a rechargeable inflatable resilient compressed air canister shaving a normally open mouth thereof, the mouth including an external surface of the mouth; [and]

(b) an intake manifold of said pneumatic engine, said manifold comprising an internal air inlet for complementally receiving said open mouth of said canister, said manifold further comprising means for enabling continuous flow of compressed air from said canister through said air inlet and to said pneumatic engine; and

(c) a retaining cap bracket coupled to said intake manifold, the retaining cap bracket including therein an aperture for receiving said external surface of said mouth of said canister, wherein if the mouth is positioned sufficiently within the aperture of the retaining cap bracket, at least the external surface of the mouth and the retaining cap bracket removably secure the mouth to said intake manifold.

Claim 2 (Amended): The assembly as recited in claim 1, said intake manifold further comprising:

[(c)] an external air inlet inclusive of a one-way check valve for permitting selectable external re-pressurization of said air canister without removal thereof from said internal air inlet.

Claim 3 (Original): The assembly as recited in claim 1, in which an interface of said intake manifold said mouth of said air canister and air canister defines means for complementary positive mechanical securement to thereby ensure secure fluid communication of said air inlet with air canister.

Claim 4 (Original): A fluid input assembly for a pneumatic engine for a toy vehicle, the assembly comprising:

(a) a rechargeable inflatable resilient compressed air canister having a normally-open mouth including thread means integrally formed upon an external surface of a mouth-defining neck of said mouth;

(b) a substantially circumferential retaining cap bracket including therein thread means proportioned for complementary securement about said thread means of said neck of said canister; and

(c) an engine-to-canister bracket comprising means for mechanical securement of said canister to exterior surfaces of said pneumatic engine,

whereby said canister is stabilized relative to said pneumatic engine.

Claim 5. (Canceled)

Claim 6 (Original): The assembly as recited in claim 4, further comprising:

an external air inlet for said air canister in continuous fluid communication with said input assembly by which selectable external re-pressurization of said canister may be accomplished.

Claim 7 (Amended): A pneumatic engine for toy vehicles, comprising:

(a) a selectably inflatable compressed air canister;

(b) an intake manifold, comprising:

an engine air inlet, in fluid communication with said air canister, the inlet including means for providing compressed air to said canister through said manifold;

(c) a cylinder housing including:

(i) distal and proximal regions thereof,

(ii) an inlet in fluid communication with said engine air inlet, and

(iii) at said proximal region, a plurality of air exhaust apertures;

(d) a one-way check valve including a proximal element, reciprocally situated at least partially within said inlet of said cylinder housing, said check valve residing in a normally closed position relative to said inlet;

(e) a piston slidably mounted along a longitudinal axis of said housing in a substantially fluid-tight relationship relative to internal circumferential walls of said distal region of said cylindrical housing, said piston including an axial member projecting distally toward said cylinder housing inlet and proportioned in diameter for insertion therein, said piston having a substantially concave proximal surface thereof;

(f) a piston spring mounted about said axial member of said piston and having a length greater than said axial member and, thereby, at a distal end thereof, having a length sufficient to effect selectable contact with a proximally directed element of said check valve during intervals of high pressure between said piston and said cylinder housing;

(g) a connecting rod having a distal end proportioned for complementary non-rigid mechanical interface with said proximal surface of said piston;

(h) an eccentric rotationally mounted to an engine power delivery shaft, said eccentric rotatably secured to a proximal end of said connecting rod, in which rotation of said eccentric by said rod will transmit angular momentum and force to said system power shaft,

whereby reciprocation of said connecting rod by said eccentric will increase pressure between a distal side of said piston and enclosed internal portions of said cylinder housing and will compress said piston spring against said proximal element of said check valve, thereby imparting potential energy to both said spring and compressed air within said cylinder and,

further whereby, at maximum of distal reciprocation, said proximal element of said check valve will urge open relative to said inlet of said cylindrical housing, thereby effecting a brief high pressure input of compressed air from said canister, through said intake manifold and into said distal region of said cylindrical housing, said high pressure air input thereby initiating expansion of said piston spring and movement of said piston toward said proximal region of said cylinder housing, the same causing reiterative cycles of reciprocation of said piston, connecting rod, cam, and engine power shaft.

Claim 8 (Original): The engine as recited in claim 7, in which said intake manifold and air canister comprise means for complemental positive mechanical securement therebetween which ensures said fluid communication of said air inlet with said air canister.

Claim 9 (Amended): The engine as recited in claim [2], in which securement means include a radial cap of said intake manifold having thread means for securement to said canister and an elastomeric seal seated between said intake manifold and said canister.

Claim 10 (Original): The engine as recited in claim 7, in which said piston comprises:
a piston seal, including a circumferential skirt proportioned in radius to inner walls of said housing, said seal integrally dependent from a proximal surface of said piston.

Claim 11 (Five Times Amended): A pneumatic engine, comprising:

(a) a rechargeable canister having an opening therein, the opening including an external surface of the opening;

(b) an engine cylinder; and

(c) a chamber rigidly coupled directly to said canister, said chamber having an aperture therethrough and an air inlet in fluid communication with said opening in said canister, said chamber also in fluid communication with said engine cylinder, said chamber is coupled to a retaining cap bracket, wherein if the opening of the canister is positioned sufficiently within the retaining cap bracket, at least the external surface of the opening and retaining cap bracket removably secure the opening of the canister to the air inlet.

Claim 12 (Original): A pneumatic engine according to claim 11, wherein said chamber is rigidly coupled to said engine cylinder.

Claim 13 (Original): A pneumatic engine according to claim 11, wherein said engine cylinder has an air inlet, said air inlet adapted to allow air to pass from said chamber to said engine cylinder.

Claim 14 (Original): A pneumatic engine according to claim 13, wherein said engine cylinder air inlet has a one-way check valve.

Claim 15 (Original): A pneumatic engine according to claim 11, wherein said aperture is adapted to allow high pressure air to be pumped through said chamber and into said canister.

Claim 16 (Five Times Amended): A pneumatic engine, comprising:
a rechargeable canister having an opening therein, the opening including an external surface of the opening;

an engine cylinder; and

a chamber rigidly coupled directly to said engine cylinder, said chamber having an aperture therethrough and an air inlet in fluid communication with said opening in said canister, said chamber also in fluid communication with said engine cylinder, the chamber is coupled to a retaining cap bracket, wherein if the opening of the canister is positioned sufficiently within the retaining cap bracket so that the external surface of the opening interlocks with the retaining cap bracket, at least the surface of the opening and the retaining cap bracket removably secure the opening of the canister to the air inlet.

Claim 17 (Original): A pneumatic engine according to claim 16, wherein
said chamber is rigidly coupled to said canister.

Claim 18 (Original): A pneumatic engine according to claim 16, wherein
said engine cylinder has an air inlet, said air inlet adapted to allow air to pass from said chamber to said engine cylinder.

Claim 19 (Original): A pneumatic engine according to claim 18, wherein
said engine cylinder air inlet has a one-way check valve.

Claim 20 (Original): A pneumatic engine according to claim 16, wherein
said aperture is adapted to allow high pressure air to be pumped through said chamber and into said canister.

Claim 21 (Three Times Amended): A pneumatic engine, comprising:
a rechargeable canister having an opening therein, the opening including an external surface;
an engine cylinder;
a valve for recharging said canister; [and]
a chamber rigidly coupled to said canister, said chamber having a first channel and a second channel, said first channel coupled to said opening in said canister and adapted to allow fluid to pass therethrough, and said second channel [coipled]coupled to said valve and adapted to allow fluid to pass therethrough; and
a retaining cap bracket coupled to said chamber, the retaining cap bracket including therein an aperture for receiving said opening of said canister, wherein when the external surface of the opening of the canister is positioned within the aperture of the retaining cap bracket a predetermined distance, at least the external surface of the opening of the canister and the retaining cap bracket removably secure the opening of the canister to said chamber.

Claim 22 (Original): A pneumatic engine according to claim 21, wherein
said second channel is coupled to said engine cylinder and said first channel is coupled to said second channel.

Claim 23 (Original): A pneumatic engine according to claim 21, wherein
said first and second channels allow fluid to pass from said valve to said canister.

Claim 24 (Original): A pneumatic engine according to claim 21, wherein
said first and second channels allow fluid to pass from said canister to said engine cylinder.

Claim 25 (Original): A pneumatic engine according to claim 21, wherein
said chamber is rigidly coupled to said engine cylinder.

Claim 26 (Original): A pneumatic engine according to claim 21, wherein
said fluid is high pressure air.